30 mar 82

Site: CAAP ID#: PEDJ/3520234 Break: 3.3 Other: great 3.30-82

ERRATA SHEET FOR CORNHUSKER ARMY AMMUNITION PLANT

GEOTECHNICAL REPORT - INTERIM REPORT NO. 2

Page,	Paragraph
I	ine

p. 1, para 1, 1.3

Comment: Add "environmental" after

"preliminary".

Response:

No additional information needed.

p. 1, para 1, 1.4

Comment: Dele

Delete "contamination".

Response:

No additional information needed.

p. 1, para 1, general Comment:

This paragraph neglects the reason why wells were installed; namely, to determine if contaminants in groundwater are migrating or have the potential to migrate beyond the boundaries of CAAP.

Response:

The groundwater monitoring wells were installed to determine if contaminants in groundwater are migrating or have the potential to migrate beyond the boundaries

of CAAP.

p. 3, para. 1, 1.

Comment:

What is the O.D. of the HSA used?

1-2

Response:

The outside diameter of the hollow stem auger used for drilling

was 11 inches.

p. 3, para 1, 1.

2-5

Comment:

It should be detailed that split spoon samples were both driven (using the Standard Penetration Test) and also pushed depending upon material type. Also, explain how samples have been retained.

Response:

The soil samples are being stored at CAAP. The following samples have been delivered to Western Laboratories for analysis.

0134

44775
SUPERFUND RECORDS
04-00 3/30/82

53

GEOTECHNICAL REPORT - INTERIM REPORT NO. 2 (Continued)

Page, Paragraph, Line

Boring No.	Sample No.	Boring No.	Sample No.
G-3	s - 3	G-22	s-7
G-3	S-4	G-22	S-8
G-3	S-5	G-23	S ~ 5
G-3	S-5	G-23	S-7
G-7	S-4	G-23	S-8
G-7	s-6	G-24	S-4
G-7	s-7	G-24	S~5
G-16	S-4	G-24	S-6
G-16	S - 5	G-24	S-7
G-16	S-6	G-24	S-8
G-16	S-8	G-27	S-5
G-17	S-4	G-27	S-6
G-17	S-5	G-27	s-7
G-17	S-6	G-27	S-8
G-17	S-8	G-30	S-4
G-19	S-4	G-30	S-5
G-19	S-5	G-30	s-7
G-19	S-6	G-30	S-8
G-19	S − 7	G-33	S-4
G-19	S-8	G-33	S - 5
G-22	S-5	G-33	S-6
G-22	s-6	G-33	S-7
		G-33	S-8

p. 3, para 1, 1. 5-7 Comment:

USATHAMA's "Minimal Requirements for Boring Logs, Drilling Procedures, and Monitor Well

Installation" should be referenced here as it details the methodologies

used in the field.

Response:

No additional information needed.

p. 3, para 2

Comment:

No mention here is made of the water added down the hollow stem to prevent heaving. Indicate approximate amounts used per boring, source of water and conditions (depths, etc.) for use.

GEOTECHNICAL REPORT - INTERIM REPORT NO. 2 (Continued)

Page, Paragraph	<u>,</u>	
p. 3, para 2 continued	Response:	The source of the water was well house #3. Water was introduced into the hollow stem to prevent heaving. Water was also added between the PVC pipe and the hollow stem auger in order to prevent the well casing from being pulled up with the hollow stem auger. Water was added to only 3 wells. Four gallons were added to G-13. Water was added to G-12 and G-3, however the amount is unknown.
<pre>p. 3, para 3, 1 2-6</pre>	. Comment:	How were the sand, bentonite and grout emplaced (poured, tremmied, shoveled, etc.)? To what levels, or what general thicknesses of sand and bentonite were used?
	Response:	The sand was shoveled into the annulus. The bentonite was poured into the hole dry. The grout was poured from a barrel.

Well No.	Feet of Sand Added to Well	Feet of Bentonite
G-1	not recorded	5
G-2	3'	5
G-3	7'5"	5
G-4	not recorded	5
G~5	4'	. 5
G-6	3'	5
G-7	3'	6
G-8	1'	6
G-9	5 '	5
G-10	31	5
G-11	4'7"	5
G-12	5'1"	4'11"
G-13	4'	5

GEOTECHNICAL REPORT - INTERIM REPORT NO. 2 (Continued)

Page, Paragraph, Line

	Feet of Sand	
Well No.	Added to Well	
G-14	1'9"	5
G-15	4'	5
G-16	not recorded	
G-17	not recorded	5
G-18	3'	5
G-19	5'2"	5
G-20	5' 0	5 E
G-21 G-22	1'6"	5 E
G-23	0 .	5 5 2
G-24	0	5 5
G-25	not recorded	5
G-26	2'	5
G-27	3'	6
G-28	2'	5 5 5 6 5
G-29	3'6"	5 5
G-30	4 ' 4 "	5
G-31	1'	5 5 ' 5 "
G-32	4'7"	
G-32	4'6"	5
p. 3, para 5, 1. 3-5	Comment:	Indicate the general height of the well protection avove the well riser.
	Response:	0.25 - 0.40 feet
p. 5, para 1, 1. 1-2	Comment:	Indicate the number of the well from which water was taken to rinse the well drilling equipment.
	Response:	Well house #3.
p.5	Comment:	A paragraph on well surveying methodology should be included as part as the well installation.

GEOTECHNICAL REPORT - INTERIM REPORT NO. 2 (Continued)

Page, Paragraph, Line		
p. 5 (cont'd)	Response:	Horizontal control was established from two CAAP monuments on the southern part of the plant. A closed traverse was run with a one second transit and an electronic distance measurement device. Vertical control was established from various benchmarks within the plant boundaries. Several level loops were run in order to establish the elevation on all 31 monitoring wells.
p. 5, para 3, 1. 5-8	Comment:	This paragraph fails to mention why the well casing and screen came up with the augers and how the problem was avoided (for the most part) in future installations.
	Response:	The well casing and screen came up with the augers due to soil materials wedged between the augers and the well casing. The problem was later avoided by adding water between the auger and the well casing to act as a lubricant.
<pre>p. 5, para 3, 1. 10 and p. 5, para 4, 1. 2</pre>	Comment:	Indicate whose decision it was to redrill G-29 and G-2, and not to grout the original wells.
	Response:	G-29 produced a low yield during development. Bob Sneed of Southwestern Laboratory (Geologist) decided to redrill the well in order to achieve a higher yield. Peter Wirth of USATHAMA made the decision to redrill G-2. Joseph Higgens of Mason & Hanger-Silas Mason Company, Inc. requested that the original wells not be grouted.

GEOTECHNICAL REPORT - INTERIM REPORT NO. 2 (Continued)

Page, Paragraph,		
Line		
p. 5, para 4, 1. 1-2	Comment:	a. Was there anything on the log for the original well G-2 which suggests it is located in an anomalous area - i.e., more silty or clayey?
		b. What can this low yield be attributed to?
	Response:	a. Nob. Grout around the screen
p. 5, para 5, 1.4	Comment:	Add "USATHAMA" after "into the" and capitalize "Data and Management System".
	Response:	No additional information needed.
p. 6, bottom	Comment:	The subscripts are not keyed into the table.
	Response:	Delete footnotes.
p. 7, Northing Column	Comment:	Check the northing coordinate for G1 - there seems to be a digit missing.
	Response:	A digit was missing. Northing coordinate for G1 should read 4532218.
p, 9, 10	Comment:	The legend and shadings on these two pages are illegible. Attached legible copies plus the reference for the data are provided for assistance. Unfortunately, references for Figures 3-3 and 3-4 cannot be identified.

Response: Attached

GEOTECHNICAL REPORT - INTERIM REPORT NO. 2 (Continued)

		·
Page, Paragraph, Line	•	
p. 10, lower cross- section	Comment:	The location of CHAAP is incorrect on this cross-section. CHAAP is actually entirely within T. 11 N. as shown on the attached diagram which was distributed at the pre-bid conference.
	Response:	Corrected (See Attachment)
p. 19, para 1, 1.3	Comment:	Insert "and" after "north-south".
	Response:	No additional information needed.
p. 19, para 1, 1.	Comment:	Add "surface" after "general" for clarity.
•	Response:	No additional information needed.
p. 19, para 2, 1. 22-25	Comment:	It should be noted that the soils series descriptions were included in Chapter 3.
	Response:	No additional information needed.
p. 21	Comment:	a. This diagram is misleading by showing the water level above the bentonite seal (i.e., showing a piezometer and not an observation well). Although the static water level is opposite the screen at 6 wells due to water level changes after the screen was set, it was planned to set the top of the screen at the first encountered water level making the wells installed as observation wells.

Also, static water levels should all be taken on one day,

not over a period of <u>six</u> days as was done, to be truly

accurate.

GEOTECHNICAL REPORT - INTERIM REPORT NO. 2

Page, Paragraph, Line		
p. 21 (Cont'd)	Response:	a. The water level symbol was positioned for legibility purposes, not to indicate the desired or even typical construction.
		b. Significant water level fluctuations do not normally occur in such a short period of time except where influenced by erractic pumping nearby.
p. 22, title	Comment:	Add "SURFACE" prior to "SOILS MAP" for clarity as all unindurated materials in text are referred to as "soils". Also, this diagram would be greatly enhanced by putting the well numbers on it and by dashing boundaries which are inferred.
	Response:	See Attachment.
<pre>p. 19, bottom line and p. 24, top line</pre>	Comment:	This sentence is poorly worded. If there is clay to 13 feet, how can anything be overlying it?
	Response:	pg. 19 bottom line, "olive-grey clay from 1 to 13 feet"
<pre>p. 24, para 2, 1.3 p. 24, para 3, 1.3 p. 27, para 2, 1.4 p. 31, para 1, 1.4</pre>	Comment:	"Horizonation is used on all these lines, however, there is no such word.
p. 31, para 1, 1.4	Response:	"Horizonation includes the proanisotropic processes and conditions by which initial materials are differentiated into soil profiles with many horizons."
		Buol, S.W., F.D. Hole, and R. J. McCracken "Soil Genesis and Classification." Towa State

Classification," Iowa State

University Press, Ames pg 91, 1973

GEOTECHNICAL REPORT - INTERIM REPORT NO. 2 (Continued)

Page, Paragraph, Line		
p. 27, para 3, 1.2	Comment:	Add a hyphen after "fine".
	Response:	No additional information needed.
p. 31, para 1, 1. 3-4	Comment:	What changes, if any, are anticipated below 40.5 feet in the aquifer from those characteristics exhibited in the aquifer that's been drilled into?
	Response:	Grain size may increase with depth as described elsewhere in the report.
p. 37, last line	Comment:	Check the spelling of "frozen" in the "Comments" column.
	Response:	Delete the letter "m".
p. 47, para 2, 1.2	Comment:	Add "USATHAMA" before "Data".
	Response:	No additional information needed.
p. 47, para. 3, 1. 10-11	Comment:	Comparing the evaporation rate with the precipitation rate should also shed light on the infiltration rate for this area.
	Response:	See ref., page 52.
p. 47, para 4	Comment:	Were water levels obtained in any of the deep supply wells to aid in this interpretation?
	Response:	No.
<pre>p. 50, para 3, and p. 51-55</pre>	Comment:	In the discussion on contaminant migration velocities, no mention was made of several important factors: (1) whether or not the pollutants travel as fast as groundwater, (2) effects of water level rises and drops, (3) effects

GEOTECHNICAL REPORT - INTERIM REPORT NO. 2 (Continued)

Page, Paragraph,		
p. 50, para 3, and p. 51-55 cont'd		of aquifer pumping and off- boundary usage, (4) methods of
		pollutant disposal, and (5) possible differences between the horizontal and vertical hydraulic conductivities.
	Response:	The aspects of contaminant migration described above will be addressed in the Contamination Analysis Report (Interim Report No. 3) and/or the Final Report for this project.
p. 51, last column	Comment:	Add "Horizontal Migration" to the beginning of the column title.
	Response:	See attached corrected table.
p. 51, bottom, Darcy Equation	Comment:	Define the parameters V, K, i and n. Is V an average value? Is n the "effective" porosity or regular porosity?
	Response:	<pre>V = velocity, defined as the trasnport velocity or macroscopic flow velocity. K = coefficient of permeability i = hydraulic gradient n = effective porosity (an estimate and not based on any measurements)</pre>
p. 53, para 2, 1. 10	Comment:	Check the spelling of "theoretical".
	Response:	Theoretical is the correct spelling.
Soil Boring Logs	Comment:	Check spelling on form of

10

themselves.

"Classification" for "Classification of Materials column. Also, many lines separating USCS classifications in the "Legend" column are missing as well as a few USCS classifications

GEOTECHNICAL REPORT - INTERIM REPORT NO. 2 (Continued)

Page, Paragraph,
Line

Soil Borings Logs (Cont'd)

Response: The correct spelling is shown above. Transition lines and USCS classifications have been added to the attached boring logs.

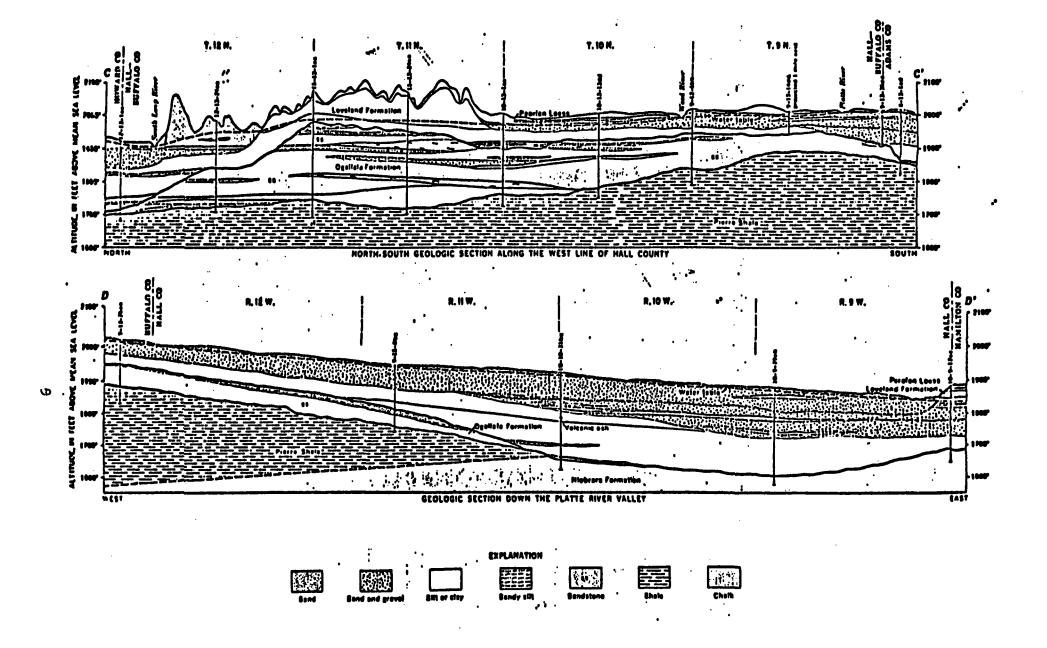
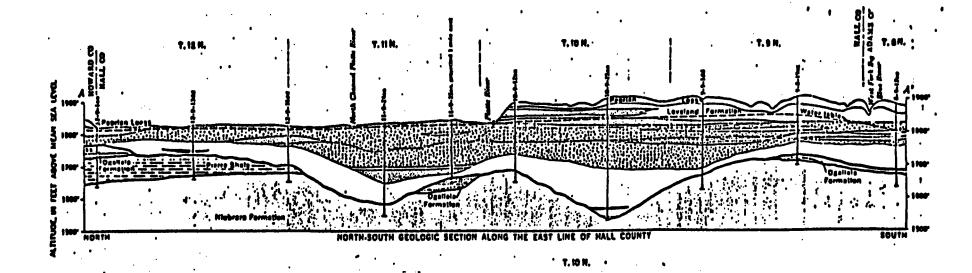


Figure 3-1 Geologic Sections Across Hall County, Nebraska (Sheet 1 of 2)

Reference: Keech, C.F. and V.H. Dreeszen, 1964, Availability of ground water in Hall County, Nebraska: U.S.G.S. Hydrologic Investigations Atlas HA - 131.



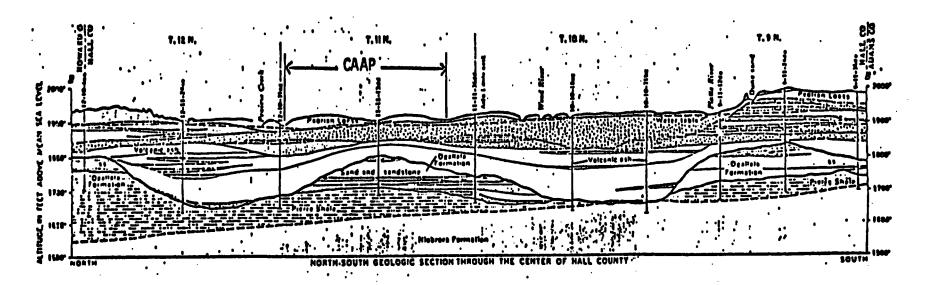


Figure 3-1. Geologic Sections Across Hall County, Nebraska (Sheet 2 of 2)

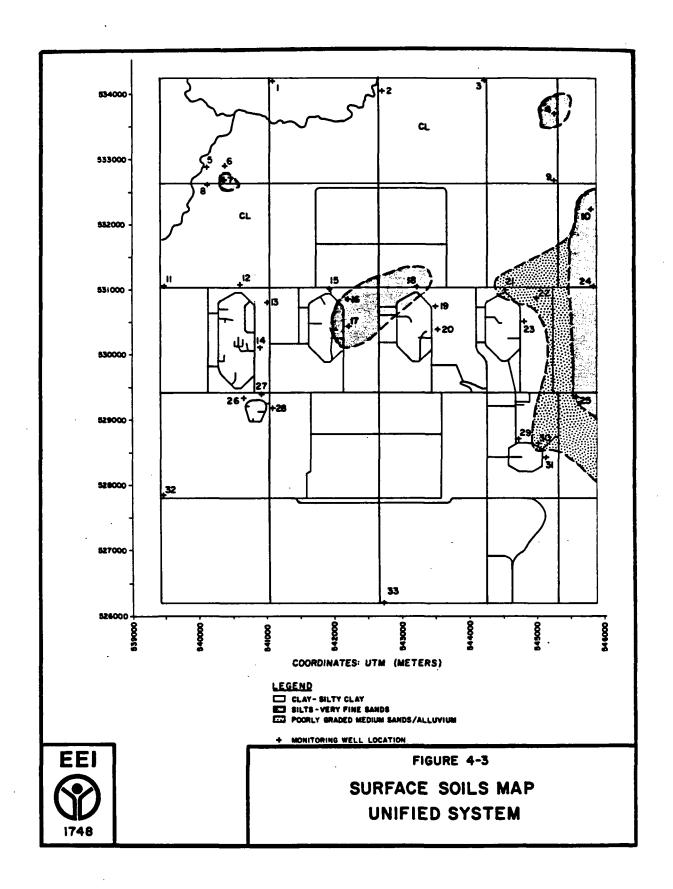


TABLE 5-2
GROUNDWATER FLOW VELOCITIES SUMMARY

Soil Sampling Site	Water Table Gradient (i)	Maximum Probable Velocity ¹	Minimum Probable Velocity ²	Migration Time	Horizor Migration Maximum	ntal Distance ³ Minimum
	ordatent (1)	(ft/day)	(ft/day)	(yrs)	(ft)	(ft)
S1	0.0015	3.01	0.11	40	44,019	1606
S2	0.0015	3.01	0.11	16	17,606	642
S 3	0.0015	3.01	0.11	16	17,606	
S4	0.0015	3.01	0.11	40	44,019	642
S5	0.00071	1.43	0.05	15	7,816	1606
S 6	0.00071	1.43	0.05	40	20,840	274
S7	0.0017	3.42	0.12	40	·	730
S 8	0.0017	3.42	0.12	16	49,973	1752
S9	0.0016	3.22	0.11	14	19,989	701
S10	0.0016	3.22	0.11	16	16,448	562
s 11 "	0.0016	3.22	0.11		18,798	642
S12	0.0016	3.22	0.11	15	17,624	602
S13	0.0012	2.42	0.087	40	46,996	1606
S14	0.0012	2.42		40	35,300	1270
S15	0.0012	2.42	0.087	29	15,420	921
Amm. N.		2.42	0.087	29	15,420	921
Area	0.00102	2.05	0.074	40	30.000	
Burn.				40	30,023	1079
Ground	0.00084	1.70	0.061	40	24,724	890
¹ K = 670 ft ² K = 24 ft/6 ³ until 1982	/day = 1.6 x 10 ⁻¹ day = 8.5 x 10 ⁻³ c	cm/sec } and	$V = \frac{Ki}{n}$ wi	here n = 0.35 (·	

APPENDIX A SOIL BORING LOGS

DATE BORING COMPLETED 11-9-81

DATE BORING STARTED 11-9-81

ELEV	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	RECOV	BOX OR SAMPLE	REMARKS
		04	Dark Brown Clayey	ERY	NO S-1	O sample S-1 Taken from auger
	=		Top Soil, w/ organic Sharp	12/12	1.0	Measurement -
	1111111111111		Olive Gray highly plastic clay, stiff moist, no free water 5/2-5Y Fluvial			Pepths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
		СН			4.0	<u> </u>
		•				All samples in Plastic bags
	5			12/18	S-2	Method of taking samples
					5.5	Pushed - P Driven w/ - D
1						(40#hammer Hole Drilled W/11" O.D &
	1 3		•			· 6" I.D. H.S.A.
			·			Protective casing not set at this tim time-not available
	=				9-0	Center plug of avg
	10-				s.3	from 20 to 35 ft. 80 gals water used as follows: 20-20 gal.
					10.5	25-20 gal. 25-20 gal. 30-20 gal. 35-20 gal.
			Sharp			Grant mixed and pumped into hole I
i	-		Dark olive gray clayey loose silt, w/10-15%	1		19.5 ft.
		1	clay moist no free water.	-	14.0	Free water encountered at
	15-	SM.	3/2-5Y	2/18	S-4	18.0 ft.
		ML	Fluvial		15.5	Pree water observed in sample
]				S-5
1	-	1				
1	-	SP	Sharp Dark Gray find sand	1		
		4	free water loose 4/1 5Y		19.0] [
1	20]	Fluvial	18/1	8 s-5	P

R	n	Þ	۱ħ	١G	. G-]	
₽	v	м	••	·		

PROJECT_CAAP	BORING N. G-1
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 18.0
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

ELEV	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	* REMARKS
	25	SP	Becoming medium to coarse in size w/1-2% pea gravel at 23.0 ft. Becoming coarse in size w/1-2% pea gravel at 28.0 ft.	18/1	24.0 \$-6 25.5	D
	30		at 20.0 it.	18/1	· s_7	D
	35		T.O. 35.5 ft.	12/1	34.0 S-8	D I
	40				39.0	

PROJECT CAAP

BORING___G-1

RING	LOG PAGE 1 OF 2 PAGE
-	BORING NCG->
_	FIRST ENCOUNTERED WATER DEPTH 13.0.
-	DATE ENCOUNTERED 11-12-81
_	GROUND ELEVATION
_	GEOLOGIST S SIGNATURE
<u>1</u>	DATE BORING COMPLETED 11-12-81
	- - -

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
		OH	Dark Grayish Brown clayey top soil with organic (Sharp)	2/12	S-1	O sample S-1 Taken from auger
	1111111111	СL	Light yellowish brown low plasticity, silty stiff clay, moisture free water, highly jointed 6/4-2.5Y Fluvial		1.0	Measurement Depths - Pt. Samples - In. Recovery -In./In. All samples taken W/split spoon
	5-			18/18	4.0 S-2	All samples in Plastic bags Method of taking P samples
					5.5	Pushed - P Driven w/ - D (400hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A.
	10-		Sharp	12/10	9.0 8.3	Protective casing was not placed at this time pecause it was not available.
	-	WIL	Light yellowish brown firm silty, no apparent bedding, moist no free water Fluvial 6/4-2.5Y		0.5	Center plug of auger was not used from 25 to 30 ft. 20 gals. water used to advance auger from 25 to 30 ft.
	-	1	Sharp		4.0	P.V.C. fell about 1 ft. when augers were pulled.
	15-	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Light yellowish brown fine sand, loose w/free water Fluvial 6/4-2.5Y	7/18	5-4	Coment hand mixed and poured into hole because we only had to grout 5.25 ft.
		***************************************	Augers started drill very easy at 13.0 ft. indicating ground water Also free water observe in sample S-4		9.0	Hole caved to 24
		1		12/1	8 S-5	

PROJECT	CAAP	

BORING_G-2

PROJECT_CAAP	G LOG PAGE 2 OF 2 PAGE BORING NG-2
DRILLING CONTRACTOR SWL	
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	1111111111111	WS	Become a light gray, loos3, fine to coarse sand at 19.0 ft. w/1-2% pea gravel M7/-2.5Y Fluvial			
			Grading to a very fine light gray loose sand w/a few gray loose silt seam 3 to 4 inches		24.0	
	25		thick between 20 & 20 Ft N7/-2.5Y Fluvial	18/18	S6	P
		}	·		25.5	
					29.0	
	30 _			18/1	S-7	
			T.D. 30.5		30.5	
			·	<u> </u>	34.0	<u>.</u>
	35		,		S-8	
					35.5	
	40			-	39.0	1

PF	2	.IF	CI	CAAP	

-PROJECT_CAAP	BORING NC. G- 3
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 13.0
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-12-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODELCHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 11-12-81	DATE BORING COMPLETED 11-12-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	%CORE RECOV ERY	BOX OR SAMPLE NO		REMARKS
		OH	Dark Brown clayey Top Soil with organic	2/12	S-1		O sample S-J Taken from auger
			Sharp		1.0		Measurement Depths - Ft. Samples - In.
		CL	Light yellowish brown stiff, low plasiticity, silty clay with iron				Recovery -In./In. All samples taken W/split spoon
			stains 6/4-2.5Y Moist, no free water		4.0		All samples in
	5		Fluvial	18/18	S-2		Plastic bags Method of taking samples Pushed - P
			·		5.5		Driven w/ - D (40#hammer Hole Drilled
							W/11" 0.D & 6" 1.D. H.S.A. Protective casing
		-	Sharp Light yellowish brown,		2-0		was not placed at this time because it was
	10	51	loose very fine sand moist, no free water	18/18	s.3	P	not available. Center plug of augers was not
			Fluvial 6/4-2.5Y		0.5		used from 15 to
							80 gals of water f- was used as follows:
			W/1-2% gravel				15-20 gal. 20-20-gal. 25-20 gal.
			Free water encountered at 13.0 ft.	/18	4.0		P.V.C. dropped
	15-		Cuttings from auger were wet and free was in sample	6/18	S-4	Р	about 1" where augers were pulled.
			5-4				mixed and poured because we only had 4' to grout
-	-						mad 4 to drout
i					9.0		Hole caved to
	20			6/18	s-5	D	16.5 ft.

PROJECT CAAP

PROJECT_CAAP	BORING N. G-3
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL _CME-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
ELEY	25	SW	Gray, loose, fine to coarse sand w/ a few sand gray clay seams 4 to 5 inch thick N5/-2.5Y Pluvial T.D. 30.5	%CORE RECOV ERY	но 24.0	D
	40	1			39.0	

PROJECT __CAAP BORING __G- 3

PROJECT_CAMP	BORING NC G- 4
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 18.0
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-9-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 11-9-81	DATE BORING COMPLETED 11-9-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	%CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
		OH	Dark brown clayey top soil w/organics sharp moist	12/12		O sample S-1 Taken from auger
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ML	Light yellowish brown clayey silt loose 10-15% clay Dry 6/4-2.5Y Fluvial		1.0	Measurement Depths - Pt. Samples - In. Recovery -In./In. All samples taken W/split spoon
	5-			18/12	4.0 S-2	All samples in Plastic bags Method of taking Samples
	-		Sharp		5.5	Pushed - P Driven w/ - D (40#hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A.
	-	SP	Light yellowish brown loose find sand w/1-2% pea gravel moist no free water 6/4-2.5Y		9.0	Protective casing- not placed at this time because it was not avail- able.
	10-			2/18	s.3	P.V.C. dropped
	-					about 1 ft. when augers were pulled. Center plug not used from 20 to
					14.0	35 feet 80 gals. water used as follows:
	15-	_	Pree water encountered	12/1	8 S-4 15.5	P 25-20 gal. 30-20 gal. 35-20 gal.
			at 18.0 ft. Free water observed in sample S-5			Hole caved at 19.5 ft.
		1			19.0	
	20	1	<u></u>		S-5	Р

PRC	JECT	CAAP
rnv	/ULU 1	

PROJECT_CAAP	LOG PAGE 2 OF 2 PAGE BORING NG-4
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

Becoming medium to coarse in size at 25.0 24.0 S-6 D 4/16 25.5 18/18 5-7 D 30.5	ELEV. D	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
No Sample S-8		25		Becoming medium to coarse in size at 25.0		25.5 29.0	
TD 35.5		35		TD 35.5	No Sampl	S-8	

PROJECT __CAAP

BORING G-4

- BORING	LOG PAGE 1 OF 2 PAGE
PROJECT_CAAP	BORING NC. G- 5
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 35
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-10-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE

DATE BORING STARTED_11-10-81_

DATE BORING COMPLETED 11-10-81

ELEV.	DEPTH L	EGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	-	77		12/12		O sample S-1 Taken from auger
		L	organics Sharp Dark grayish brown stiff silty clay highly jointed 20-25% silt moisture free water 4/2-2.5Y		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
	4		Fluvial Low plasticity		4.0	All samples in
	5 - 1			18/18	5-2	Plastic bags P Method of taking samples Pushed - P
	ملسبان	İ	Light yellowish brown stiff silty clay, highly jointed 20-25% silt moist, no free wate	}	5.5	Driven W/ - D (40#hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A.
	سلستا		6/4-2.5Y Fluvial Low Plasticity		9.0	Protective casing not placed at this time. P.V.C. dropped about 1 ft. when
	10 =			18/18	s.3	P Center plug at augers not used
					0.5	15 to 30 feet. [80 gals water use2] as follows: 15-20 gal. 25-20 gal. 30-20 gal.
		ML	Dark gray, clayey loose silt, 15-20% clay w/5% fine sand seam every l ft.	18/1	14.0 S-4	Grout hand mixed and poured in hole because it is not available.
	uthun		N41-7.5YR Fluvial Free water encountered at 13.5 ft.		15.5	at 16.0 ft. Method of ohtaineng sample
		SP	Gray fine loose sand with 1 to 2% pea gravel N 6/0 7.5 YR Fluvial			Free water observed in sample S-4
	20 17		·	2/1	9.0 S-5	P

PROJECTCAAP	BORING G- 5
PROJECT	DOKING

DRIL DRIL GEO RIG	LING CONTR LERS NAME LOGIST NAI MAKE/MODI	ACTOR SVL Kraft ME Sneed FL CME-55	BORING N FAGE UF FAGE BORING N G-5 FIRST ENCOUNTERED WATER DEPTH S DATE ENCOUNTERED GROUND ELEVATION GEOLOGIST S SIGNATURE DATE BORING COMPLETED
ELEV	DEPTH LEGEND	CLASSIFATION OF MATERIALS	%CORE BOX OR RECOV SAMPLE REMARKS

ELEV	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	25			18/18 No	25.5	
	35 35 40		T.D. 30.5		34.0 \$-8 35.5	

PROJECT __CAAP

BORING G-5

PROJECT_CAAP	LOG PAGE 1 OF 2 PAGE BORING NC G-6
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-10-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED_11-10-81	DATE BORING COMPLETED 11-10-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	1111	οH	Black to very dark gray clayey top soil w/ organics	12/12	S-1	O sample S-1 Taken from auger
	11111111111	ст	Sharp Light yellowish brown silt clay, stiff, highly jointed moist no free water 6/4-2.5Y		1.0	Measurement Depths - Ft. Samples - In. Recovery - In./In. All samples taken W/split spoon
	5-		Fluvial	18/18	4,0 S-2	All samples in Plastic bags Method of taking samples Pushed - P
	-	6 SH	Sharp Dark olive gray soft, clayey silt, moist, no free water 3/2 - 5Y Fluvial		5.5	Driven W/ - D (40#hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A.
	10-	ML	-	8/18	9.0 S.3	Note- Could get P.V.C. pine to go out the bottom HSA
			·		0.5	due to clay plug. Tried to pull P. V.C. and the screen pulled off Back filled hole with sand to 13.0 feet. Grouted
	-	13	Gray loose find to medium sand w/free water H5/-2.5Y		14.0	hole from 13.0 fect to 2.0 ft. Redrilled 10 ft. to the south.
	1 .	3	W/1-2% pea gravel	2/18	15.5	
	-					
	20	1		2/18	9.0 8-5	

PROJECT CAAP	
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PROJECT_CAAP	BORING NG-6 PAGE
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CME-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

ELEV.	DEPTH	_EGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	25 30 35 40		Sharp Gray silty, stiff clay w/10% silt H3/-2.5Y Fluvial T.D.30.5	18/15	25.5	

PROJECT CAAP BORING C-6

PROJECT_CAAP		_OF_2_PAGE
DRILLING CONTRACTOR SWL	-	ER DEPTH 13.0
DRILLER S NAME Kraft	DATE ENCOUNTERED 1	1-11-81
GEOLOGIST NAME Sneed	GROUND ELEVATION	
RIG MAKE / MODELCHE-55	GEOLOGIST S SIGNATURE	
DATE BORING STARTED_11-11-81-	DATE BORING COMPLETE	D11-11-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
		OH	Black to dark gray top soil with organic moist	12/12	S-1	O sample S-1 Taken - from auger :
		мг	Sharp Light yellowish brown loose clayey silt w/20-25 clay moist, no free water 6/4-2.5Y Fluvial		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
	5-			3/18	4.0 S-2	All samples in Plastic bags Method of taking samples Pushed - P
			,		5.5	Driven w/ - D (40#hammer Hole Drilled W/11" O.D 6 6" J.D. H.S.A.
	-		Becoming less clayey at 8.0, 10-15% clay	18/18	9.0 s.3	Grout was hand mixed and noured into the hole rather than pumped because we only had 4.5 feet to grout.
•	-		·		0.5	Protective casing was not placed at this time It has not arrived on site as yet.
		SP	Gray loose fire sand, w/free water H5/-2.5Y Fluvial		14.0	Hole caved to
	15-			6/18	S-4	10.5 10.
:	-		Free water encountered at 13.0 ft. This water level was noted by the engineer of drilling, indicating sand.		15.5	
		4		<u> </u>	9.0	Drove split
	20	1		No samp	S-5	spoon 18" w/140# hammer at S-5

BORING	G-7	

·	LOG PAGE 2 OF 2 PAGE
PROJECT_CAAP	BORING N. G-7
DRILLING CONTRACTOR SWI.	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL _CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

EL.EV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	25	SP	Becoming coarse in size at 27 to 28 feet w/1-2% pea gravel.	12/18	25.5	A total of 80.0 qallons of water was used to advance augers starting at 14.0 ft. 20 qals 14' 20 qals 19' 20 qals 24' 20 qals 29' Drove split spoon 18" w/140# hammer at S-6
	35		TD 30.5		S-7 30.5 34.0 S-8 35.5	18" w/14" hammer at 5-7

PROJECT __CAAP

BORING___C-7___

PROJECT_CAMP	LOG PAGE 1 OF 2 PAGE BORING NC
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-11-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODELCHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 11-11-81	DATE BORING COMPLETED 11-11-81

ELEV.	DEPTH L	EGEND	CLASSIFATION OF MATERIALS	RECOV	BOX OR SAMFLE	REMARKS
	 	24	Black to dark gray	ERY	NO S-1	O sample S-1 Taken from auger
	📑]	organics	12/12	1.0	Measurement
	سالسا	L	Sharp Light yellowish brown silty clay, highly jointed with low plasticity, stiff moist			Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
	= = = = = = = = = = = = = = = = = = =		no free water	18/18	4,0	All samples in
	2 1				S-2	Plastic bags Hethod of taking samples Pushed - P
	1		·		5.5	Driven w/ - D (40#hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A.
	1					Center plug was used to a depth of From this point
	10 - 1			18/18	9.0 S.3	to the bottom of the hole the center nlug was not used.
					n.5	P.V.C. was placed inside H.S.A. When auger pulled out P.V.C. fell about 1 ft. because of sand inside of augers.
	1 11			2/18	5-4	Grout hand mixed and poured in
	 	5M	Gray loose fine sand, w/free water H5-2.5Y	18/18	15.5	hole because we only had 8 ft. to grout.
			Fluvial Free was observed in the fine sand in lower part of sample S-4			Protective casing not claced at this time.
	1				9.0	Nole caved to
	20 3			9/1	S-5	

PROJECT	г салр

PROJECT_CAAP	BORING NG_R
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODELCHE-55	GEOLOGIST S SIGNATURE
DATE BODING STARTER	DATE BODING COMPLETES

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	milianlandini					100 gallons of water used to advance auger as follows: 20 gal 15 ft. 20 gal 20 ft. 20 gal 25 ft. 20 gal 30 ft. 20 gal 35 ft.
	25		Dark gray loose clayey silt w/ 10-15% silt N 41-2.5Y Fluvial	18/18	24.0 S-6	Drove split spoon 18" w/140# hammer at S-6
	-	sp	Light gray medium to coarse loose sand w/ 1-2% pea gravel N 7/- 2.5 Y Fluvial			
	30			No sampl	29.0 5-7	Drove split spoon 18" w/140= hammer at S-7 Had to advance
	1					augers to 35.5 ft. let top of screen down to 15 ft. due to sand in augers and caving sand.
	35	CI.	Dark gray silty clay low plasticity, 15 to	19/18	34.0 S-8	Drove split spoon lt" w/140% hammer at
			low plasticity, 15 to 20% silt Fluvial T.D. 35.5'		35,5	S-8
					39.0	
	40	1				

PROJECT ___CAAP_____

BORING___G-____

PROJECT_GAP BORING	BORING NC G-9
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 14.0
DRILLER'S NAME Kraft	DATE ENCOUNTERED 11-12-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED_11-12-81	DATE BORING COMPLETED 11-12-81

ELEV	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	1111	оH	Black to dark gray clay ey top soil w/organics	12/12	S-1	O sample S-1 Taken from auger
	1111111	C∼	sharp Light yellowish brown stiff, low plasticity silty clay, highly jointed dry to slightly moist 4/-2.5Y		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
			Fluvial Sharp		4.0	<u> </u>
	5	رگ ا	Light yellowish brown loose, very fine sand moist no free water 6/4 - 2.5Y	8/18		All samples in Plastic bags P Method of taking samples Pushed - P Driven w/ - D
						(400hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A.
			·	 	9_0	Protective casing not placed at this time because it was not available.
	10			12/18	S.3	P Center plug of auger was not used from 15 to 3
			w/1-2% pea gravel from 14.0° downward			30 feet. 80 gal. water used as follows: 15-20 gal. 20-20 gal.
			Free water observed in sample S-4 at about the middle of sample	4/18	14.0_	25-20 gal. 30-20 gal. P.V.C. dropped about 1 ft. when augers were pull-
	15-				15.5	ed up. Grout was hand mixed and poured into hole because we only had 6 ft. to grout
	-					Hole caved to 16'
	20			12/18	9.0 S-5	-

BORING_	G-8		

PROJECT_CAAP	LOG PAGE 2 OF 2 PAGE BORING NG-9
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	25		Becoming medium to coarse w/1-2% pea gravel between 16 & 19 ft.	12/18	24.0° S-6 25.5	P
	30 11			No Sampl	29.0 S-7	
			T.O. 30.5		3 0. 5	
	35		·		S-8	
	40				39.0	

PROJECT CAAP

BORING G-9

PROJECT_CAAP	LOG PAGE 1 OF 2 PAGE BORING NC. G-10
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 13.0
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-8-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED_11-8-81	DATE BORING COMPLETED 11-8-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO		REMARKS	٦
	1,111	он	Black to dark gray clayey top soil w/ organic moist	2/12	S-1		O sample S-1 Taken from auger	
		SA ML	Sharp Light yellowish brown loose clayey silt 10-15% clay Dry 6/4-2.5Y Fluvial		1.0	-	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon	,
			Sharp		4.0		All samples in	. ·
	, ,		Light yellowish brown loose fine sand with 1-2% pea gravel	12/1	S-2	P	Plastic bags Method of taking samples Pushed - P	
		SP	moist no free water Fluvial 6/4-2.5Y		5.5	-	Driven W/ - D (40#hammer Hole Drilled W/11" O.D &	•
							6" I.D. H.S.A. Protective casing not set at this	•
	-				9.0_		time because it was not available. P.V.C. dropped	⊷
	10-			12/1	s.3	P	about 1 ft. when augers were pulled Center plug of	•
					.n.5		augers not used from 15 to 30 ft. No water used.	-
			Free water encountered at 13.0 Free water observed in sample S-4				Grout hand mixed and poured into hole.	-
					4.0		Hole caved at 16.5 feet.	-
	15-			6/18	S-4	P		-
								-
					9.0			-
	20		·	12/1	S-5	l _e		

BORING_	_G-1	

	PROJECT_CAAP BORING	LOG PAGE 2 OF 2 PAGE BORING N			
	DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 13.0			
	DRILLER S NAME Kraft	DATE ENCOUNTERED			
	GEOLOGIST NAME Sneed	GROUND ELEVATION GEOLOGIST S SIGNATURE DATE BORING COMPLETED			
	RIG MAKE / MODEL CHE-55				
	DATE BORING STARTED				
Γ.	EV DERTU LECENO CLASSESTION OF METERNALO	% CORE BOX OR			

ELEV.	DEPTH LEGEND	CLASSIFÁTION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	3 milimilimilimilimilimilimilimilimi		12/18	24.0 S-6 25.5	D
	2)	T. D. 30.5		34.0 S-8 35.5	

PROJECT _____

BORING G-10

PROJECT_CAAP	LOG PAGE 1 OF 2 PAGE BORING NC. G-11
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 14-0
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-13-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL _CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED_11-13-81	DATE BORING COMPLETED_11-13-81

DATE BORING COMPLETED 11-13-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE	BOX OR SAMPLE NO	REMARKS
	1111	оН		12/12		O sample S-1 Taken from auger
	امتعيابه بار	CL	organic sharp		1.0	Measurement Depths - Pt. Samples - In. Recovery -In./In. All samples taken W/split spoon
·	5-1		Very dark grayish brow silty, stiff low plasticity highly		5-2	All samples in Plastic bags Method of taking samples Pushed - P Driven w/ - D
	and a line		jointed moist clay. No free water 3/2-10Y Fluvial	18/18	3.3	P (40#hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A. Protective casing
	10-		Light yellowish brown very fine sand loose	18/18	9.0 5.3	not placed at this time because it was not available. Center plug of augers 15 to 30ft P.V.C. dropped about 1 ft. when
			moist, no free water 6/4-2.5Y Fluvial		10.5	auger were pulled. Grout was hand mixed and poured into hole because we only had 5.5 feet to grout.
	15-	SW	Becoming between 11 & 14 ft. A gray fine, loose sand w/1-2% pea gravel N5/-2.5Y Pluvial	18/18	s-4	80 gals. water use as follows: 15-20 gals. 20-20-gals. 25-20-gals. 31-30-gals. Hole caved to 15 ft.
		,	e e			Hole drilled with
	20			No samp	9.0 5: 6 -5	<u></u>

PROJECT	CAAP	BORING_	G-11	
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BURING	LUG PAGE _2_OF_2_PAGE
PROJECT_CAAP	BORING NG-11
DRILLING CONTRACTOR SWL	
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	11111111111111		Become medium to coarse in size between 16 to 19 ft.			
	25			No Sampl	24.0 S-6	D
	10000					1 1 1 1
	30 _			12/18	29.0 S-7	
	25		T.D. 30.5'		17.3	
	35				34.0 S-8	<u>.</u> .
					35,5	
	40				39.0	

PROJECT __CAAP _____ BORING___C-11____

PROJECT_CAAP	BORING NC G-12 PAGE
DRILLING CONTRACTOR_SWL	
DRILLER S NAME Kraft	DATE ENCOUNTERED_11-13-R1
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL _CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 11-13-81	DATE BORING COMPLETED 11-13-81

ELEY.	DEPTH LEG	END	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
•	0	H	Dark brown silty clay- ey top soil with org-	12/12		0 sample S-1 Taken from auger
	سباسبا	<u>.</u>	Olive, silty, stiff moist, clay with iron stains, no free water		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
	and an		5/4-5Y Pluvial Low plasticity		4.0	All samples in Plastic bags
	2,1			18/18	S-2 5.5	P Method of taking samples Pushed - P Driven w/ - D
	1					(40#hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A.
	4	•	Light yellowish brown fine, loose, sand with free water 6/4-2.5Y Fluvial		9.0_	Protective casing not placed at this time because it was not avail able.
	10-			18/18	ļ	Center plug of P augers not used from 15 to 30 ft 80 gal. water
	handan				0.5	used as follows: 15-20 gal. 20-20 gal. 25-20 gal. 30-30 gal.
	138	ا م	Free water observed L in sample S-3		14.0_	P.V.C. dropped about 1 ft. when augers were pulled.
	25 4 4	į		12/18	S-4	Grout was hand P mixed and poured into hole because we only had ft. to grout
	أستطيبيانية					Hole caved to 145
	1		Becoming a gray, loose fine sand, W/1-2%		9.0	
	20		pea gravel between 16- 19 ft.	18/1	S-5	P

BURING	LOG PAGE 2 OF 2 PAGE
PROJECT_CAAP	BORING No
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 14.0
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE PODING STARTED	DATE BORING COMPLETED

ELEV.	DEPTH LEG	GEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	majarajarajarajarajarajarajarajarajaraja	L	Dark gray silty, stiff, clay, 4/1-5Y Low plasticity Pluvial T.D. 30.5	8/18	24.0 S-6 25.5 29.0 S-7 30.5 34.0 S-8 35.5	D D

PROJECT ______ BORING_______

PROJECT_CAMP BORING	BORING NC G-13 PAGE
DRILLING CONTRACTOR_SML	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-14-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 11-14-81	DATE BORING COMPLETED 11-14-81

wet and free water had to grout 10.0 from samples- 5 was ft. observed.	ELEV.	DEPTH LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
Measurement Depths - Ft. Samples - In. Recovery -In./In.		он	silty clayey top soil	12/12	S-1	
few very thin fine sand seams at one inch thick. 18/18 S-2 Phastic bags Phastic bags Phastic bags Nethod of taking samples Samples Samples Parties bags Nethod of taking samples Samples Parties bags Parties bags Parties bags Parties bags Parties bags Nethod of taking samples Parties bags Parties b		l	w/organics Sharp Light yellowish brown silty, low plasticity moist clay, 20-25% silto/4-2.57 Fluvial No free water with a		1.0	Depths - Pt. Samples - In. Recovery -In./In. All samples taken
10 18/18 5.5 Driven w/ - D (409hamer) Hole brilled W/11" 0.D & 6" 1.D. H.S.A.		7	sand seams at one	18/18	S-2	Plastic bags Hethod of taking samples
In this time because it was not available. P.V.C. dronned about one ft. where auner was nulled. Center plum of auners not used from 20 to 35 ft. Center plum of auners not used from 20 to 35 ft. R0 mals. water used as follows: 20-20 mal. 25-20 mal. 35-20 mal. Where auner was not used from 20 to 35 ft. R0 mals. water used as follows: 20-20 mal. 35-20 mal. 35-20 mal. Grout was hand mixed and poured into hole we only had to grout 10.0 ft. Band becoming high gray in color at 18.0 ft. 6/1-5Y		1414441444			5.5	Driven w/ - D (40#hammer Hole Drilled W/11" O.D &
Light yellowish brown loose, find sand moist no free water 6/4-2.5Y Fluvial Fr-e water encountered at 18.0 ft. cuttings from auger were very wet and free water from samples- 5 was observed. Sand becoming high gray in color at 18.0 ft. 6/1-5Y Center plug of augers not used from 20 to 35 ft. 80 gals. water used as follows: 20-20 gal. 30-20 gal. 35-20 gal. Grout was hand mixed and poured into hole we only had to grout 10.0 ft. Bole caved to 10.0 ft.		استاستلس		18/18		not placed at this time because it was not available. P.V.C. dropped about one ft.
Fr-e water encountered at 18.0 ft. cuttings from auger were very wet and free water from samples- 5 was observed. Sand becoming high gray in color at 18.0 ft. 14.0 25-20 gal. 30-20 gal. 35-20 g		SP	loose, find sand moist no free water 6/4-2.5Y		0.5	Center plum of aumers not used from 20 to 35 ft. 80 mals. water used as follows:
from auger were very wet and free water from samples- 5 was observed. Sand becoming high gray in color at 18.0 ft. 6/1-5Y		15 11	Fr-e water encountered at 18.0 ft. cuttings	12/1	S-4	25-20 gal. 30-20 gal. 35-20 gal. Grout was hand mixed and poured
ft. 6/1-5Y		4	from auger were very wet and free water from samples- 5 was observed. Sand becoming high gray in color at 18.0			into hole we only had to grout 10.0 ft. Hole caved to 19.6
12/18 S-5 P		1		120	1	

PRC)JECT	CAMP

PROJECT_CAAP	LOG PAGE 2 OF 2 PAGE BORING N. G-13
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL _ CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
		SW	Becoming fine to medium in size between 21 & 24 ft.			
	25			12/18		P
	1		·		25.5	
	30				29.0 S-7	
			T. D. 30.5 S		30.5	
	_		·		34.0	
	35 -				S-8 35.5	
·		لمبيابين			39.0	
	40	1				

PROJECT CAAP

BORING C-13

FROJECT_CAAP	BORING NC G-14 PAGE 1 OF 2 PAGE BORING NC G-14
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH20.0
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODELCHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 11-26-81	DATE BORING COMPLETED 11-26-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO		REMARKS	
	1111	oH	Black to dark brown clayey top soil w/	12/12		ſ	sample S-1 Taken rom auger	
		2:	organics Sharp Olive, stiff, moist silty clay w/20% silt, no free water 5/4 - 5Y Fluvial		1.0	D S R	easurement epths - Ft. amples - In. ecovery -In./In. ll samples taken /split spoon	
	=	CL			4.0			ì
	5			18/18	s-2	P M	11 samples in lastic bags ethod of taking amples	
					5.5		ushed - P riven w/ - D 40#hammer ole Drilled !/11" O.D & " I.D. H.S.A.	
	-				9.0_	1	Center plum of summer not used from 20 to 35 ft so gals. of water used to cle	- -
	10-		Sharp	18/19	s.3	, i	augers out at 35.5 ft.	
		W	Light yellow, brown loose, silt, very fine sand, moist no free water 20% silt		0.5		P.V.C. dropped about ft. when augers were bulled.	
			6/4-2.5Y Fluvial Sharp		14.0			
	15		Light yellowish brown loose fine sand w/1-2%	18/18	S-4	P		
		SP	pea gravel moist, no free water 6/4-2.5Y Fluvial Free noted on bit and sample S-5		15.5			معاميماني
			Becoming fine to medium					<u> </u>
	20		at 19 ft. Free water encounted at 20.0 ft.	12/18	19.0 S-5	P		<u> </u>

PROJECT CAAP

BORING G- 14

BORING	LOG PAGE 2 OF 2 PAGE
PROJECT_CAAP	BORING NG-14
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 20.0
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-26-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE DODING STARTER 11-16-91	DATE BOOKING COMPLETED AN AC AL

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
	30		Becoming gray in color at 25 feet N6/-2.5Y Becoming medium to coarse between 26 to 29 feet	18/18	24.0 S-6 25.5 29.0 S-7		
	-		T.D. 35.5'		35.5		•
	40	1			39.0		

PROJECT CAAP

BORING G-14

PRO	ECT_C	CAAP	· · · · · · · · · · · · · · · · · · ·	BORING NC G-15				
DRILLING CONTRACTOR SWI.					ENCOU	NTERED WATER DEPTH_20'		
						NTEREDI1-26-81		
ŒO	LOGIS	T NA	ME Sneed	GROUNI) ELEV	ATION		
RIG	MAKE	/ MOD				SIGNATURE		
DATE BORING STARTED 11-26-81						COMPLETED_11-26-81		
ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS		
	1111	оН	Black to dark brown clayey top soil with organic	12/12	S-1	O sample S-1 Taken from auger		
	111111111111111	CL	Sharp Olive stiff moist silty clay w/iron stain 25-30% silt, No Free water 5½ - 5Y Fluvial		1.0	Heasurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon		
	1 -]			4.0	All camples in		

 			ERT	NO		
 3		931- 4- 31- b		- 1	O sample S-1 Taken	
. 4	OH	Black to dark brown clayey	12/12	S-1	from auger	- 1
		top soil with organic	12/12			- 1
1 1	1	Sharp		1.0	Measurement	- 1
-		Olive stiff moist silty			Depths - Ft.	- 1
		clay w/iron stain		i	Samples - In.	- 1
_		25-30% silt, No Free water	1		Recovery -In./In.	- 1
-		54 - 5Y	1		All samples taken	- 1
		Fluvial		1	W/split spoon	
1 :	- 1	Linatar		1	.	- 1
l =	CL				t	- 1
1 <u>-</u>	l -			4.0		.
1 :	i	·			All samples in	- 1
] =	1			_ {	Plastic bags	ŀ
5 –	1		18/18	S-2	Method of taking	. 1
:	•		10/10		samples _	- 1
		·			Pushed - P	- 1
=	1		8 1	5.5	Driven w/ - D	. 1
1 :	1				(40#hammer	- 1
	1				Hole Drilled	ı
1 -	1		1		W/11" O.D &	.
	1		} i		6" 1.D. H.S.A.	
1 -	ł				L E	1
!	1			1	S> F	.
1 :	į į				Center plug and others not used from	- 1
1 :	}		İ			- 1
1 -	1			9.0	20-35'	- 1
1 :	1		1		Į	,
	ł		ļ		l E	- 1
10-	1		18/18	S.3	F	- [
1 :	1	T .	10/10			- 1
10-	ł				11-4 2011-m of t	i
1 -	3	Sharp	1	1.5	Used 30 gallon of water to advance	-
1 :	1 .	Signify	1	1	auger as follows:	1
1 :	1 1	Light yellowish brown	ł	ł	20 - 20 gal.	
1 -	1	loose very fine sand. Moist	4	l	35 - 10 gal.	• }
1 :	1 '	no free water		i	1 33 - 10 dar.	1
1 :	d l	6/4-2.5Y	1	1	P.V.C. dropped about	1
1 -	7	Fluvial, with 18-28 pea	į .	I		-
1 :	i t	gravel Free water observed	ł	t	l' when augers pul- led.	
1 .	- I , p	on bit at 20' becoming	ì	I	i ^{rea.} t	
1 -	34	medium to coarse between	<u> </u>	14.0	Hole caved to	•
1 :	1 /	16-19'	1	ł	note caved to	.
	=	10-13	1	l	i t	
15-	7		14-18	5-4	IP E	-
1	4	1	L		J E	
1 :	1			5.5	1 F	
-	4	·	i	İ	i i	-
1	7		ì	1	1 F	
1	1	1	1	1	i i	•
1 -	-1	1	1	1	Į t	-
1	7	1	.[1	i t	
i	コ	ł	1	1	į F	
-	d	ł	1	1	į t	-
1	4	1	1	1	1	
1	1	1	1 .	9.0	Į F	-
١ .	-	1		1	1	. :
į	7	•	1	S-5	<u>t</u>	
20	1	·	12/18	3 <u>1 " - "</u>	P	

PROJECT	CAAP	BORING_G-15
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PROJECT_CAAP	LOG PAGE 2 OF 2 PAGE BORING N. G-15
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH25_
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-26-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODELCHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 11-26-81	DATE BORING COMPLETED 11-26-81

ELEV	DEPTH	EGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMFLE NO	REMARKS	
	25 %		Becoming gray between 21-24' N6/2.5Y	12/18	24.0 \$-6 25.5 29.0 \$-7	D	
	35 49 49 49 49 49 49 49 49 49 49 49 49 49		T.O. 35.5	12/18	34.0 S-8 35.5		-

PROJECT CAAP BORING G15

PROJECT_CAAP	LOG PAGE 1 OF 2 PAGE BORING NC. G-16
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 18.5
DRILLER S NAME Kraft	DATE ENCOUNTERED 11/6-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODELCHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED1-6-81	DATE BORING COMPLETED_11-6-81

ELEV.	DEPTH	L EGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	1111	οН	Black to dark gray clayey topsoil with organics	12/12	S-1 1.0	O sample S-1 Taken from auger
	1111		Sharp	'	1.0	Depths - Pt. Samples - In. Recovery -In./In.
			Light yellowish brown loose clay silt moist with no free water			All samples taken W/mplit mpoon
		ML	6/4-2.5Y Fluvial orgin		4.0	All samples in Plastic bags
	5-		10-15% clay	18/18	s-2	
			·		5.5	Driven w/ - D (40#hammer Hole Drilled W/11" O.D 6
						6" I.D. H.S.A. Protective casing
					9.0.	not placed at this time because it was not available.
	10-			18/18	s.3	P No water used
					0.5	Hole caved in at
			Sharp			
			Light yellowish brown with 1 to 2% pea gravel Moist no free water 6/4-2.59		14.0	
	15-		Fluvial origin	l.	S-4	P
	/_	VZ			15.5	
	-	**	Free water encountered at 16 feet	5		
		-	Gradacional		9.0	_
-	20	1		9/18	S-5	<u> </u>

>	ROJECT	CAAP
•	RUJELI	

PROJECT_CAAP	BORING NG-16
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

ELEY.	DEPTH	EGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	ببيداييينا ببينان	SP	Light yellowish brown loose coarse sand w/1-2% pea gravel 10-15% fines with free water Fluvial orgin 6/4-2.5Y			
	25 11			9/18	24.0 S-6	p
					25.5	
	***************************************				29.0	
	30		·	No Sample	30.5	
·						
	35			12/18	34.0 S-8	
			TO 35.5			
	40			_	39.0	

PROJECT __CAAP____

BORING___C-16

PROJECT_CAAP	LOG PAGE 1 OF 2 PAGE BORING NC G-17
DRILLING CONTRACTOR_SWI.	FIRST ENCOUNTERED WATER DEPTH 18.0
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-7-81
GEOLOGIST NAME Sne	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED_11 -7-81	DATE BORING COMPLETED 11-7-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
		OH	Black to dark gray clayey top soil with organic, moist		S-1	O sample S-1 Taken from auger
	=		Sharp		1.0	Mcasurement Depths - Ft.
	=		Light yellowish brown loose			Samples - In. Recovery -In./In.
,		3 /2	clayey silt 10-15% clay moist w/no free water			All samples taken W/split spoon
		6V.	0/4 - 2.31			[
	-	W			4.0	All samples in
	5			6/18	S-2	Plastic bags Method of taking samples
					5.5	Pushed - P Driven w/ - D
				·		(40#hammer Hole Drilled W/11" O.D &
			·			6" 1.D. H.S.A.
			Sharp Light yellowish brown loose	i	1 1	F
			fine sand w/l to 2% pea gravel. Moist no free water 6/4-2.5Y		9.0	<u> </u>
	10-	SP	Fluvial orgin	14/18	5.3	<u> </u>
	10-				0.5	<u> </u>
			·			
		•				
		1				
	-	1	Grading fine in size to medium to coarse at about		14.0	<u> </u>
	15-		18 ft.	12/18	s-4	
		3		<u> </u>	15.5	
		1	Free water encountered at 18.0 feet.			
]				
	-	1				<u> </u>
		‡			9.0	<u> </u>
	20	‡		i	S-5	į

P	R	0	JE	C	T	CAAP	
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BORING	S LOG PAGE Z OF Z PAGE
PROJECT_CAAP	BORING NG-17
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 18.0
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODELCHE-\$5	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
					·		
	25				24.0		
	25 _			12/18	S-6		
	-		·		25.5	1. 1. 1.	
					29.0		
	30 _			No Sample	S-7	- - - - -	
	35						
					34.0		•
		<u> </u>	т о 35.5	5/12	S-8 35.5		
	-						
	40				39.0		

PROJECT CAAP BORING 6- 17

PROJECT_CAAP	BORING NC. — G- 18
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 20'
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-27-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL _ CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 11-27-81	DATE BORING COMPLETED 11-27-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	1	OH	Dark brown clay w/organic top soil	12/12	S-1	O sample S-1 Taken from auger
	استباسات	ML ML	Light yellowish brown loose silty sand with 20% silt moist 6/4-2.5Y Airborn		1.0	Measurement Depths - Pt. Samples - In. Recovery - In. / In. All samples taken W/split spoon
	1111111111		Sharp	18/18	4.0 S-2	All samples in Plastic bags Method of taking samples Pushed - P. Driven w/ - D
	lanninal	er	Light yellowish brown stiff, moist, silty clay no free water. 6/4-2.5Y Sharp		3.3	(40#haumer Hole Drilled W/1!" O.D & 6" I.D. H.S.A. Center plug of auger is not used from
	10 11	8	Light yellowish brown loose, moist, find sand 1%-2% pea gravel No free water 6/4-2.5Y	12/18	9.0 5.3	No water used to advance auger P P.V.C. dropped about 1' when auger
	15		·		0.5	pulled Hole caved to 18'
	15		Free water observed on the bit at 20'	12/18	s-4	
	1				15.5	
	20		No sample from 19-20 ¹ ;		9.0 S-5	D :

PROJECT ____CAAP

BORING_G- 18

PROJECT_CAAP	BORING N. G-18
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-27-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL _CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED11-27-81_	DATE BORING COMPLETED 11-27-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	%CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
			Becoming medium to coarse between 23' - 24'				
					24.0	- - - - -	
	25			18/1	S=6	D	
					25.5		
	_				20.0		
	30			18/18	29.0 S-7	D	
					30.5		
	35		No sample between 34-355'		34.0 S-8		.
		}	TD 35.5'		35.5		
	-						
	40	1			39.0		

PROJECT CAAP

BORING C- 18

- PROJECT_CAAP	LOG PAGE 1 OF 2 PAGE BORING NC G- 19
DRILLING CONTRACTOR SUL	FIRST ENCOUNTERED WATER DEPTH 20
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-27-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 11-27-81	DATE BORING COMPLETED 11-27-81

ELEV.	DEPTH LEGE	ND CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	8 °	Black-Dark brown clayey top soil	12/12		0 sample S-1 Taken from auger
	ummun	Sharp Olive, stiff, moist silty clay 20-25% silt 5/6-5Y Fluvial		1.0	Measurement Dopths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
	, Juntundin		12/18		All samples in Plastic bags P Method of taking samples Pushed - P
	duntun	Light yellowish brown fine		5.5	Driven w/ - D (40#hammer Hole Drilled W/l1" O.D & 6" I.D. H.S.A.
	اساسا کی	sand, moist no free water 1-2% pea gravel	12/18	9.0. 5.3	Center plug of auger not used from 20 to 35ft. No water used to advance augers
	untunt			20.5	P.V.C dropped about 1 ft. when augers were pulled. Hole caved to 19 ft.
	molmet			14.0	
	3 1 1 1 1	Becoming coarse to medium between 16-19'	12/18	5-4 15.5	P
	mulanta				
	20 1		12/18	9.0 S-5	D E

PROJECT ____CAAP

BORING_G-

PROJECT_CAAP BORING	LOG PAGE 2 OF 2 PAGE BORING N. G-19
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 20.0
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-27-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BODING STARTED 11_27_61	DATE BOOKING COLUMN TOTAL

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
			Free water observed on the bit at 20'		·	
						- - - -
	25 _			18/18	24.0 5-6	
					25.5	
	30		Becoming grat at 30'	18/1	29.0 S-7)
					30.5	<u>.</u>
	35			18/18	34.0 S-8	
]		TD. 35.5		35.5	
	40			-	39.0	

40

PROJECT CAAP

BORING G-19

	manufacture and an experience of the second and the
PROJECT_CAAP	BORING NCG-20
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED11-28-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED11-28-81	DATE BORING COMPLETED 11-28-81
FLEY DEPTH LEGEND CLASSIFATION OF MATERIALS	% CORE BOX OR

ELÉV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	1111	CL	Brown clay with some organic top soil	12/12	S-1	O sample S-1 Taken from auger
	11111111111111	6)	Olive silty clay with		1.0	Measurement Depths - Ft. Samples - In. Recovery - In. / In. All samples taken W/split spoon
	5-	المان	20-25% silty moist with some iron stain . 4/4-5Y	18/18	4,0_ S-2	All samples in Plastic bags P Method of taking samples
					5.5	Pushed - P Driven w/ - D (40%hammer Hole Drilled W/11" O.D &
					9.0	Center plug of auger not used from 20-35 ft.
	10-			12/18	s.3	No water used to advance augers P Hole caved at 19.0
					n.5	P.V.C. dropped about 1 ft. when augers were pulled.
			Light yellowish dark brown loose fine sand. Moist no free water 6/4-2.5Y		14.0_	
	15-	ςſ		10/1	S-4	P
			Becoming medium to coarse with some pea gravel free water observed on the bit at 20'			
-	20			8/18	9.0 S-5	

P	R	o	J	Ε	C.	r <u>caap</u>	

PROJECT_CAAP	LOG PAGE 2 OF 2 PAGE BORING NG-20
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 20.0
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-28-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED_11-28-81	DATE BORING COMPLETED 11-28-81

ELEV.	DEPTH LEGE	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	milmilm	Becoming olive silty at 23 5/6-5Y	•		
	1 T S /	M	18/18	24.0 S-6	D
·				25.5	
	30		18/18	29.0_ S-7	D
				30.5	
			18/10	34.0 S-8	
	3 1	T.D. 35.5		35.5	
	5 1011111111111111111111111111111111111			39.0	

PROJECT CAAP

BORING G- 20

PROJECT_CAAP	LOG PAGE 1 OF 2 PAGE BORING NC G-21
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 20.0
DRILLER'S NAME Kraft	DATE ENCOUNTERED 11-28-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BODING STARTED 11 20-01	DATE DODING COMP. THE 11 20 01

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE	REMARKS	٦
		C4	Top soil in black to dark brown clay	12/12	NO S-1	O sample S-1 Taken from auger	1
!	heresterester	50	sharp Light yellowish loose moist fine sand 6/4-2.5Y No free water Fluvial		1.0	Measurement Depths - Pt. Samples - In. Recovery -In./In. All mamples taken W/mplit spoon	
	2007			18/18		All samples in Plastic bags P Method of taking samples Pushed - P	
:		·			5.5	Driven w/ - D (40#hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A.	
	5		Becoming medium to coarse with some pea gravel		9.0_ 5.3	P.V.C. dropped about 1 ft when augers were pulled Hole caved at ft.	
	10,111,111			18/18	10.5	P	
!							
į	15-1			12/18	5-4	1	
	, 100 F				15.5	P	
'	بينايينا ب				·		
			Free water observed on the bit at 20' and on S-5	:	970		
	20		20 Et 20 Et 41 6-3	8/18	S-5	Р	

	CT		
		CAAP	

PROJECT_CAAP	LOG PAGE 2 OF 2 PAGE BORING N. G-21
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 20.0
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-28-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODELCHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED_11-28-81	DATE BORING COMPLETED 11-28-81

ELEV.	DEPTH	L EGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
	30 _		Center plug not used from 20' - 35' No water used to advance the auger	10/18	24.0 S-6 25.5 29.0 S-7	A D	
	-	***************************************	T.D. 35.5	18/18	34.0 \$-8		•
	40	سياسياسياس			39.0		,

PROJECT CAAP

BORING___C-21

PROJECT.	BORING	BORING NC. PAGE 1 OF 2 PAGE BORING NC. C- 22	
DRILLING	CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 20'	_
DRILLER	S NAME Kraft	DATE ENCOUNTERED12-2-81	_
GEOLOG	IST NAME Sneed	GROUND ELEVATION	_
RIG MAH	KE / MODEL_CHE-55	GEOLOGIST S SIGNATURE	-
DATE BO	ORING STARTED12-2-81	DATE BORING COMPLETED 12-2-81	

Top soil is black to dark brown clay with some organic Sharp Dark brown yellowish fine sand w/20 -25% silty moist loose, It has some iron stain 6/4-2.5Y 12/18 S-1 In Measurem Depths Samples Recovery All samp W/split All samp Plastic Method of samples Pushed Driven w (406 harm Role Driven	3
Dark brown yellowish fine sand w/20 -25% silty moist loose, It has some iron stain 6/4-2.5% 12/18 S-2 p 12/18 S-2 p All samples Recovery All samples Plastic Hethodo samples Pushed Driven W/11" 0.6" 1.D. No water advance P.V.C. of Ift. wh were pushed bridge and sand, moist loose 18/18 S.3 P	
Sand encountered at 7' Sand encountered at 7' Sand encountered at 7' Sand encountered at 7' Sand encountered at 7' Sand encountered at 7' Sand encountered at 7' 18/18 S.3 P All samples exception without samples Pushed of Samples Pushed Of Samples Pushed of Samples Pushed of Samples Pushed Of Samples Pushed Of Samples Pushed Of Samples Pushed Of Samples Pushed O	- Pt. - In. y -In./In.
Sand encountered at 7' Sand encountered at 7' Sand encountered at 7' Sand encountered at 7' 10- 10- 10- 10- 10- 10- 10- 10	bags of taking
Fine light yellowish brown sand, moist loose 18/18 S.3 Fine light yellowish brown sand, moist loose 18/18 S-4 P	w/ - D mer illed J.D & H.S.A.
Fine light yellowish brown sand, moist loose 18/18 S-4 P	dropped about en augers illed.
15.5	
15.5	
Becoming fine gray sand at 17' Free water observed on the bit at 20'	
	1
9.0 18/18 S-5 P	[- - - -

PROJECT_CAAP	BORING N. G-22 PAGE
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 201
DRILLER S NAME Kraft	DATE ENCOUNTERED12-2-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED12-7-81	DATE BORING COMPLETED

ELEK	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	11111111		Becoming to medium to coarse with some pea gravel			: - - -
	25					- - - - -
					24.0 S-6	<u> </u>
	25		Center plug is not used on Sample 6	18/18	5-0	F
					25.5	Į.
]					ŀ	
	1.1.1					. [
	1				29.0	<u>.</u> .
	30 _				S-7	
	35		·	18/18	30.5	D.
]					
					34.0	<u>.</u>
				18/18	S-R	D
] .]		T.D. 35.5		35.5	<u> </u>
	, , , , , , , , , , , , , , , , , , , ,		·	·		· [
					39.0	
	40					

PROJECT CAAP

BORING___G-22

PROJECT_CAAP	 	BORING NC. G-23
DRILLING CONTRACTOR SWL		FIRST ENCOUNTERED WATER DEPTH 20'
DRILLER S NAME Kraft	_	DATE ENCOUNTERED 12-2-81
GEOLOGIST NAME Sneed		GROUND ELEVATION
RIG MAKE / MODEL _ CHE-55	_	GEOLOGIST S SIGNATURE
DATE BORING STARTED 12-2-81	_	DATE BORING COMPLETED 12-2-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE	BOX OR SAMPLE NO	REMARKS
		οH	Black to dark brown clay with some organic Sharp	12/12		O sample S-1 Taken from auger
		ذك	Olive gray silty clay with 20-25% silt moist, stiff 5/2-5Y No fr-e water		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon 2"
	5-			12/18	4,0 5-2	All samples in Plastic bags Method of taking samples Pushed - P
	_		Light yellowish brown fine sand loose moist 6/4-2.5Y Sand encountered at 7' No free water		5.5	Driven w/ - D (40#hammer Hole Drilled W/11" 0.D 6 6" I.D. H.S.A.
	10-	P		18/18	9.0_ S.3	advance augers. P.V.C. dropped about 1 ft. when augers were pulled.
	-	γ'	•		n.5	P Hole caved to
	-				14.0	
	15-	1		18/18	S-4	P
	1 .	بالبيدة أوروزاروه	Free water observed on the bit at 20'		3.3	
		1			9.0	
	20	3	·	12/11	s-5	P

P	R	O.	JΕ	C	CA.	AP		
	٠.	_		_			_	

	= = :: =	LUG PAGEOFPAGE
•	PROJECT_CAAP	BORING N G-23
	DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 20'
	DRILLER S NAME Kraft	DATE ENCOUNTERED 12-2-81
	GEOLOGIST NAME Sneed	GROUND ELEVATION
	RIG MAKE/ MODEL CHE-55	GEOLOGIST S SIGNATURE
	DATE PORING STARTED 12-2-81	DATE BODING COMPLETED

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	30		No sample between 24-25' Becoming medium to coarse with some pea gravel	12/18	25.5 29.0 S-7 30.5	P. D
	-		T.O. 35.5		35,5	li inidani.
	40_				39.0	

		_	o 33
PROJECT	CAAP	BORING_	(i=23

PROJECT_CAMP		LOG PAGE 1 OF 2 PAGE BORING NC G-24
DRILLING CONTRACTOR_SWL		FIRST ENCOUNTERED WATER DEPTH 20'
DRILLER S NAME Kraft		DATE ENCOUNTERED 12-3-81
GEOLOGIST NAME Sneed	_	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	_	GEOLOGIST S SIGNATURE
DATE BORING STARTED 12-3-R1		DATE BORING COMPLETED 12-3-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
-		0#	Top soil black to dark brown clay, with some organic	12/12	S-1	O sample S-1 Taken from auger
	Linelinelin	WL	Light yellowish brown fine sand. Moist loose 6/4-2.5Y		1.0	Measurement Depths - Ft. Samples - In. Recovery - In./In. All samples taken W/split spoon
				12/18	4.0 S-2	All samples in Plastic bags P Method of taking samples Pushed - P Driven w/ - D (40#hammer Hole Drilled
·	10		Sharp Sand encountered at 8' dept		9.0	W/11" O.D & 6" I.D. H.S.A. No water used to advance augers. P.V.C. dropped about 1 ft. when augers were pul- led.
	15-	5	Recording modium to coargo	18/18	0.5	P Hole caved to 12 ft.
	15-		Becoming medium to coarse with some pea gravel at 15	10/18		P
	- 20		Free water observed on the bit at 20'	18/18	9.0 S-5	D

•	PROJECT_CAAP	LOG PAGE 2 OF 2 PAGE BORING N G-24
	DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH
	DRILLER S NAME Kraft	DATE ENCOUNTERED 12-3-81
	GEOLOGIST NAME Sneed	GROUND ELEVATION
	RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
	DATE BORING STARTED12-3-81	DATE BORING COMPLETED 12-3-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	. REMARKS
	25 36 37 37 37 37 37 37 37 37 37 37 37 37 37		Medium to coarse sand w/some pea gravel	18/18	34.0 5-8	
	40		·		39.0	

PROJECT __CAAP BORING G-24

	HALL LOF 7 BACE
PROJECT_CAMP	BORING NC G-25
DRILLING CONTRACTOR_SUL	FIRST ENCOUNTERED WATER DEPTH 18
DRILLER S NAME Kraft	DATE ENCOUNTERED 11-8-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL	GEOLOGIST S SIGNATURE
DATE BORING STARTED 11-8-81	DATE BORING COMPLETED 11-8-81
	%CORE BOX OR

ELEV.	DEPTH L	.EGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	•	REMARKS	
	1	OH	Grayish dark brown clayey top soil w/ organic	12/12	S-1		O sample S-1 Taken from suger	
	إستيسا	ML	Sharp Light yellowish brown loose clayey silt 10-15% clay moist, no free water 6/4'-2.5Y Fluvial		1.0	•	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon	-
	21	SP	Sharp Light yellowish brown loose fine sand w/l to 2% pea gravel Moist, no free water Fluvial 6/4-2.5Y	12/18	4.0 S-2	P	All samples in Plastic bags Method of taking samples	-
					5.5		Pushed - P Driven w/ - D (40#hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A.	
			Grading from fine to medium in size between 5 and 10 ft.		9.0		P.V.C. droped about 1 ft. when augers were pulled. Center plug of auger not used from 20 to	
	ا تا سالسسال		Grading from medium to coarse in size between	12/18	s.3	P	35 ft. 80 gal. of water used as follows: 20-20 gal.	
			10 & 15 ft.				25-20 gal. 30-20 gal. 35-20 gal. Hole caved at 19.5	
•	ئاسىياسىياس بالسياسىياس				14.0		feet	
	上上		·	12/1	8 S-4	P		
•		·					·	المسامد
	20		Free water encountered at 18.0 Free water observed in sample S-5	6/18	9.0 S-5	P		

P	R	o	JE	С	T	CAAP	

PROJECT_CAAP	BORING N. G-25
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	25			No Sample	24.0 5-6	
	30			9/18	S-7	D -
	35		T.O. 35.5	9/18	34.0 S-8 35.5	D
	40				39.0	

BORING C-25

PROJECT CAAP

PROJECT_CAAPBORING	BORING NC. G-26 PAGE 1 OF 2 PAGE G-26
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 25.0
DRILLER S NAME Kraft	DATE ENCOUNTERED_12-5-81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODELCHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 12-5-81	DATE BORING COMPLETED_ 12-5-81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	1,1,1	OH	Brown clayey top soil w/ organics Sharp	12/12	S-1	O sample S-1 Taken from auger
	ole en leere	CL	Grayish brown stiff low plasticity moist, sandy, silty clay No free water 5/2-2.5Y Fluvial		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
	5			18/18	4,n 5-2	All samples in Plastic bags Method of taking samples Pushed - P Driven w/ - D (408hammer Hole Drilled W/11" 0.0 &
	10				9.0 5.3	6" I.D. H.S.A. No water used. P.V.C. dropped about 1 ft. when augers were pulled. Hole caved at 21.0 ft.
	15	SP	Sharp Light yellowish brown loose fine to medium moist sand. W-1-2% pea gravel 6/4-2.5Y No free water Vluvial	12/18	14.0 5-4	P
	and James breaking				15.5	
	20			12/18	9.0 S-5	

PROJECT_	CAAP	BORING G- 26
PROJECT _		BORING_G- 20

LOG PAGE 2 OF 2 PAGE BORING N. G-26
FIRST ENCOUNTERED WATER DEPTH 25.0
DATE ENCOUNTERED
GROUND ELEVATION
GEOLOGIST S SIGNATURE
DATE BORING COMPLETED

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
							-
	25				24.0 S-6	P	
	25		Free water observed on bit at 25.0	No Sample	25.5		-
	-	4	Becoming light gray and		29.0		
	30 _		Becoming light gray and medium to coarse between 26 and 29 ft.	18/18	S-7	D	- - -
					<u>.</u>		
	_				34.0 5-8		- - -
	35		·	18/18	35.5	D	
						·	le caralta a l
	40	1	TD 40.5		39.0 S-9	D	

PROJECT CAAP

BORING____C-26

*PROJECT_CAAPBORING	LOG PAGE 1 OF 2 PAGE BORING NC G- 27
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 13.5
DRILLER S NAME Kraft	DATE ENCOUNTERED 12-6-81
GEOLOGIST NAME_Sneed	GROUND ELEVATION
RIG MAKE / MODEL _CME-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 12+6-81	DATE DODING COMOLETES 12-6-91

LEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
		OH	Dark brown clayey top soil with organic Sharp	12/12	S-1	O sample S-1 Taken from auger
	111111111111111111111111111111111111111	р	Grayish brown stiff silty clay with iron stains, moist, no free water S/2-2.5Y Fluvial 25-30% silt		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
					4.0	All samples in
	5-			18/18	S-2	Plastic hags Hethod of taking P samples
					5.5	Pushed - P Driven w/ - D (40#hammer Hole Drilled
						W/11" O.D & 6" I.D. H.S.A.
	1		·		9-0-	No water used. Center plug of augers not used from 25 to 40
	10-			18/18	s.3	PVC dropped about 1 ft. when augers were pulled
					0.5	Hole caved at 23.0 ft.
	1					
			 		14.0	
	15		Snarp	18/18	s-4	P
		SP	Light yellowish brown, loos moist find sand 6/4-2.5Y No free water Fluvial with a few thin	2	15.5	
			(1"-4") light gray silt seams			
] =			<u> </u>	9.0] [
	20	}		P/18	S~5	. .

PROJECT ____CAAP____

BORING G-27

BORING	LOG PAGE 2 OF 2 PAGE
PROJECT_CAAP	BORING NG-27
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 23/5
DRILLER S NAME Kraft	DATE ENCOUNTERED_12-6-R1
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED_12-6-81_	DATE BORING COMPLETED_ 12-6-81

ELEV.	DEPTH LI	EGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
	75 11 12 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14		Becoming medium to coarse and light gray	12/1	24.0 s-6	D	
·					25.5		
	30			18/18	29.0 S-7	D C	•
	25				34.0		•
	1 1			18/1	S-8 35.5	D	•
	5 1		td 40.5	18/1	39.0	D	

PROJECT CAAP

BORING G- 27

PROJECT_CAAP	LOG PAGE 1 OF 2 PAGE BORING NC G- 28
DRILLING CONTRACTOR SWIL	FIRST ENCOUNTERED WATER DEPTH 21.8
DRILLER S NAME Kraft	DATE ENCOUNTERED 12/7/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE RORING STARTED 12/7/81	DATE ROPING COMPLETED 12/7/81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
		OH		12/12	S-1	O sample S-1 Taken from auger
		CL	sharp Grayish brown Stiff moist silt clay 25-30% silt 5/2 - 2.5 y Fluvial		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
	=	1		 -	4.0	All samples in
	5 -			18/18	S-2	Plastic bags Plastic bags Pethod of taking samples Pushed - P
					5.5	Driven w/ - D (40#hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A.
			Sharp		9-4	Center plug of augers not used from
	10-	SP	Light yellow brown loose fine sand Moist (no face water)	12/12	S.3	F
	-		6/4 - 2.5Y Fluvial		0.5	PVC dropped about l foot when augers were pulled
			w/1-2% pea gravel			
	1 _	3			14.0] [
	15-	1		14/1	8 s-4	P
		1	·		15.5	1
		1				
	.	4				
	.	4			9.0	1
	20	1	<u> </u>	18/1	8 s-5	P

		20	
DODING	C-	40	
BORING_	.,		

PROJECT_CAAP BORING	LOG PAGE 2 OF 2 PAGE BORING N. G-28
DRILLING CONTRACTOR_SWI.	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED 12/7/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODELCME-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 12/7/81	DATE BORING COMPLETED 12/7/81

				O/ CORE	e~ 00		
LEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	RECOV	BOX OR SAMPLE NO	REMARKS	
	25		Becoming medium to coarse between 25 & 30 ft.	9/18	24.0 s-6	D D	•
					25.5		,
	30			9/18	29.0 S-7	D	,.
	111111111		Becoming gray between 30 and 35 ft.		30.5		
					34.0		•
	35	·		18/18	S-8 35.5	D	
	1				39.0		
	40		TD 40.5'	18/18		D	

PROJECT CAAP

BORING C- 28

PROJECT_CAAL!BORING	LOG PAGE _1 OF _2 PAGE BORING NC
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 18.0
DRILLER S NAME Kraft	DATE ENCOUNTERED 11/5/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODELCHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED 11/5/81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	%CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS
	1111	OH	Grayish tan clayey top soil w/organics	12/12	S-1	O sample S-1 Taken from auger
	lini lini ili		Silty stiff dark grayish brown low plastic clay, dry to damp no free water 4-2 - 10 yr Fluvial origin		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
	5		Charo	3/18	4.0 S-2	All samples in Plastic bags P Method of taking samples
		sw	Sharp Light gray fine loose sand w/l to 2% pea gravel, moist No free water 7-2 - 2.5 y Fluvial origin		5.5	Pushed - P Driven w/ - D (404)nammer Hole Drilled W/11" O.D & 6" J.D. H.S.A.
	10-		Coarsing downward to a medium size	12/18	9.0 S.3	P
	1				14.0	
	15		Free water encountered at 18.0 ft. Free water observed in sample S-5	12/18	5-4	P
ستسبين	20			12/18	9.0 S-5	P

PROJECT CAAP

BORING C- 29

BORING	LOG PAGE 2_OF_2_PAGE
PROJECT_CAMP	BORING N. G-29
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 18.0
DRILLER S NAME Kraft	DATE ENCOUNTERED11/5/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL _CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED	DATE BORING COMPLETED 11/5/81

LEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	remarks	
	25		TD 35.5	NO SAMPL	24.0 \$-6 25.5 29.0 \$-7 30.5 34.0 £ 5-8 35.5	P & D	
	_		,		39.0		

PROJECT CAAP BORING G- 29

PROJECT_CAAP	
DRILLING CONTRACTOR SWL	
DRILLER S NAME Kraft	DATE ENCOUNTERED 12/4/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 12/4/81	DATE BORING COMPLETED 12/4/81

		OH SS	Top soil is black to dark brown clay w/some organic Light yellowish brown fine loose moist sand. The top 6" of the sample is a gray clay w/silt No free water	12/12	1.0	O sample S-1 Taken from auger Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken
		55	Light yellowish brown fine loose moist sand. The top 6" of the sample is a gray clay w/silt		1.0	Depths - Ft. Samples - In. Recovery -In./In. All samples taken
	5		No free water	1		W/split spoon
	5				4.0	<u> </u>
1				18/18	S-2	All samples in Plastic bags P Method of taking samples Pushed - P
			Sand encountered at 7'		5.5	Driven w/ - b (40#hammer Role Drilled W/11" O.D &
			depth			6" 1.D. N.S.A. No water used
İ	=		·		2.0	Hole caved to 14.5
	10-			12/1	5.3	P -
	-				0.5	
					14.0	
	15-		Becoming fine to medium at 15 ft. depth	1	s-4	P
į	_	1			15.5]
	-		Free water observed on the bit at 18 ft.			
	-	4		10/1	9.0 8 s-5	

· BORING	LOG PAGE 2 OF 2 PAGE
PROJECT_CAAP	BORING N G-30
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 18'
DRILLER S NAME Kraft	DATE ENCOUNTERED 12/4/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL _CHE-55	GEOLOGIST S SIGNATURE
DATE BODING STARTED 12/4/81	DATE POPING COMPLETED 12/4/81

LEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	·
			Becoming medium to coarse w/some pea grave	1			
	25 -		No sample between 24- 25½ ft.	0/18	24.0 S-6	P	عاميه وأصواف
					25.5		متلميساميه
			·		29.0		بتمأريتمالهم
	30			18/18	30.5	D	مصليت
						·	مميلي
	35	=	TD 35.5	18/1	34.0 5-8	D	بمعدليسيف
	-	***************************************			35.5		مسلمسيك
		علىميلى			39.0		سلست

PROJECT CAAP

BORING G- 30

PROJECT_CAAP BORING	BORING NC. — PAGE 1 OF 2 PAGE BORING NC. — G- 31
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED 12/4/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 12/4/81	DATE BORING COMPLETED 12/4/81

.EV	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
		OΗ	Black clayey top soil w/organics Sharp Moist	12/12	S-1	O sample S-1 Taken from auger	
		CL	Light yellowish brown stiff moist silty clay 6/4 - 2.5 yr No free water Fluvial Sharp		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon	-
	5	SP	Light yellowish loose brown fine sand w/1-2% pea gravel Moist No free water 6/4 - 2.5 yr Fluvial	6/18	4,0 S-2	All samples in Plastic bags P Method of taking samples	· · · · · · · · · · · · · · · · · · ·
	-				5.5	Pushed - P Driven w/ - D (40#hammer Hole Drilled W/11" O.D & 6" 1.D. H.S.A.	
					9.0	No water used	
	10-			12/18	10.5	P	
	-				14.0		طبيسليين
	15-			12/18	S-4	P	لمسلميه
							اعمميليمهم
		4		_	9.0 Lt S-5		ملنستا

PROJECT_CAAP	BORING N. G-31
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH
DRILLER S NAME Kraft	DATE ENCOUNTERED 12/4/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL _CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 12/4/81	DATE BORING COMPLETED 12/4/81

LEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
	25		Becoming medium to coarse between 21 & 23 ft.	18/18	24.0 s-6 25.5	D	
	30			18/10	30.5	D .	
	35		TD 35.5	18/1	34.0 8 S-8	D	•
	40				35,5		

PROJECT __CAAP_____

BORING G- 31

PROJECT_CAMP	BORING NC G- 32 PAGE
DRILLING CONTRACTOR_SWI.	FIRST ENCOUNTERED WATER DEPTH 25'
DRILLER S NAME Kraft	DATE ENCOUNTERED 12/7/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 12/7/81	DATE BORING COMPLETED 12/7/81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
	1111	oH	Black clayey top soil w/organics Sharp	12/12	S-1	O sample S-1 Taken from auger	
	بسيلسيان		Grayish brown stiff moist silty clay w/ 25-30% silt 5/2 - 2.5 y Fluvial		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon	-
	علىسالىب	et.		18/18		All samples in Plastic bags P Method of taking samples Pushed - P	
	ملسب لسبب				5.5	Driven w/ - D (60#hammer Hole Drilled W/11" O.D & 6" 1.D. H.S.A. No water used Center plug of auger	-
	,		Sharp	18/1	6.0 5.3	p PVC dropped about 1 ft. when augers	-
	ساسانساس		Light yellowish brown loose moist fine sand w/ 1-2% pea gravel Fluvial		0.5	were pulled Hole caved at 29.01	-
		SW			14.0		
	15 17 17 1		· ·	12/18	5.5	P	. 1
	Length 1111						
	20			2/18	9.0 S-5	D	-

RORING	(; -	-32	

PROJECT_GAAP	BORING N. G-32 PAGE
DRILLING CONTRACTOR_SWL	FIRST ENCOUNTERED WATER DEPTH 25'
DRILLER S NAME Kraft	DATE ENCOUNTERED 12/7/81
SEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED_12/7/81_	DATE BORING COMPLETED 12/7/81

ELEV	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
	25			18/18	24.0 S-6	D	
•	30 _		Becoming fine to medium at 30 feet	18/18	29.0 3 S-7	D	
	35 -		Becoming gray and mediu to coarse at 35 feet	12/1	34.0 8 S-8 35.5	D	•
	40	1		18/1	39.0 8 S-9	D	-

PROJECT CAAP BORING G- 32

PROJECTCAAP	LOG PAGE 3 OF 3 PAGE BORING NO G-32
DRILLING CONTRACTORSWL	FIRST ENCOUNTERED WATER DEPTH 25'
DRILLER S NAME Kraft	DATE ENCOUNTERED 12/7/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL	GEOLOGIST S SIGNATURE
DATE BORING STARTED 12/7/81	DATE BORING COMPLETED 12/7/81

_EV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
-EV	45		TD 45.5		BOX OR SAMPLE NO	D	
						,	

PROJECT ____CAAP

BORING___G-32

PROJECT_CAAP	G LOG PAGE 1 OF 2 PAGE BORING NC G- 33
DRILLING CONTRACTOR SWL	FIRST ENCOUNTERED WATER DEPTH 20'
DRILLER S NAME Kraft	DATE ENCOUNTERED12/6/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL _CHE-55	GEOLOGIST S SIGNATURE
DATE BODING STARTER 12/6/81	DATE BODING COMPLETED 12/6/81

ELEV.	DEPTH LEGEND	CLASSIFATION OF MATERIALS	% CORE RECOV ERY	BOX OR SAMITLE NO	REMARKS
		Dark brown to black clayey top soil w/ organics Sharp	12/12	S-1	() sample S-1 Taken from auger
	CT	Grayish brown stiff moist silty clay 5/2 - 2.5 y Fluvial		1.0	Measurement Depths - Ft. Samples - In. Recovery -In./In. All samples taken W/split spoon
	2	Sharp Light yellowish brown loose moist fine to medium sand w/1-5% pea gravel No free water Fluvial	12/18	5.5	All samples in Plastic bags Method of taking samples Pushed - P Driven w/ - D (40#hammer Hole Drilled W/11" O.D & 6" I.D. H.S.A. No water used Center plug of augers not used from 20 - 35
	المساسماسياسياسياسياسياسياسياسياسياسياسياسياسيا			8 S. 3 0.5 14.0 8 S-4	P PVC dropped about 1 ft. when augers were pulled Hole caved at 19.5 ft.
-	20	Water observed on bit at 20 feet	18/1	9.0 8 S-5	D

PROJECT_CAMPBORING	BORING N. G-33
DRILLING CONTRACTOR_SWL	FIRST FNCOUNTERED WATER DEPTH 20'
DRILLER S NAME Kraft	DATE ENCOUNTERED 12/6/81
GEOLOGIST NAME Sneed	GROUND ELEVATION
RIG MAKE / MODEL CHE-55	GEOLOGIST S SIGNATURE
DATE BORING STARTED 12/6/81	DATE BORING COMPLETED 12/6/81

ELEV.	DEPTH	LEGEND	CLASSIFATION OF MATERIALS	% CORF. HECOV ERY	BOX OR SAMIT E NO	REMARKS]
	30 35 35		Becoming medium to coarse at 30 feet	18/18	25.5 29.6 3-7 30.5 5-8		
	1	1	•		30.5	المتعددا الم	
	40						

BORING___C-_33

PROJECT CAAP